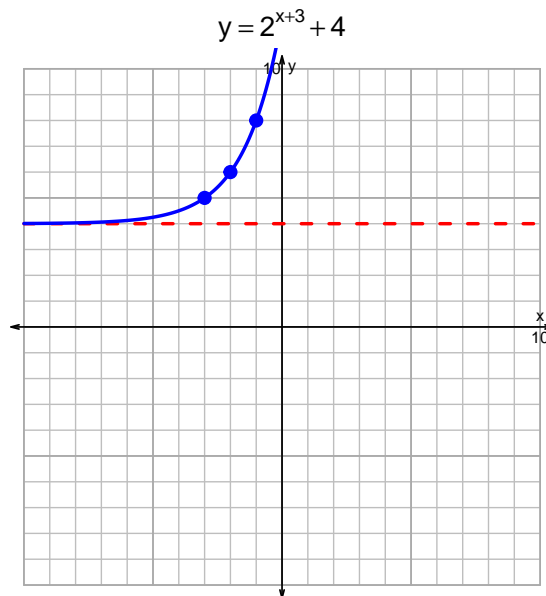
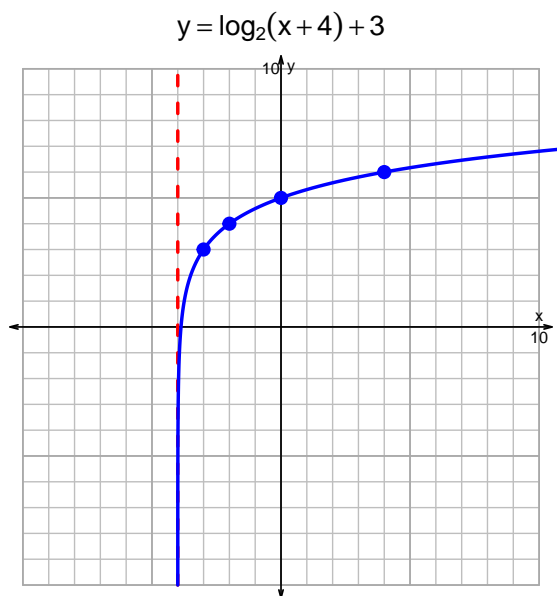


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v135)

1. Graph $y = \log_2(x + 4) + 3$ and $y = 2^{x+3} + 4$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$19 = \left(\frac{3}{5}\right) \cdot 10^{-7t/4}$$

Divide both sides by $\frac{3}{5}$.

$$\frac{19 \cdot 5}{3} = 10^{-7t/4}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{19 \cdot 5}{3} \right) = \frac{-7t}{4}$$

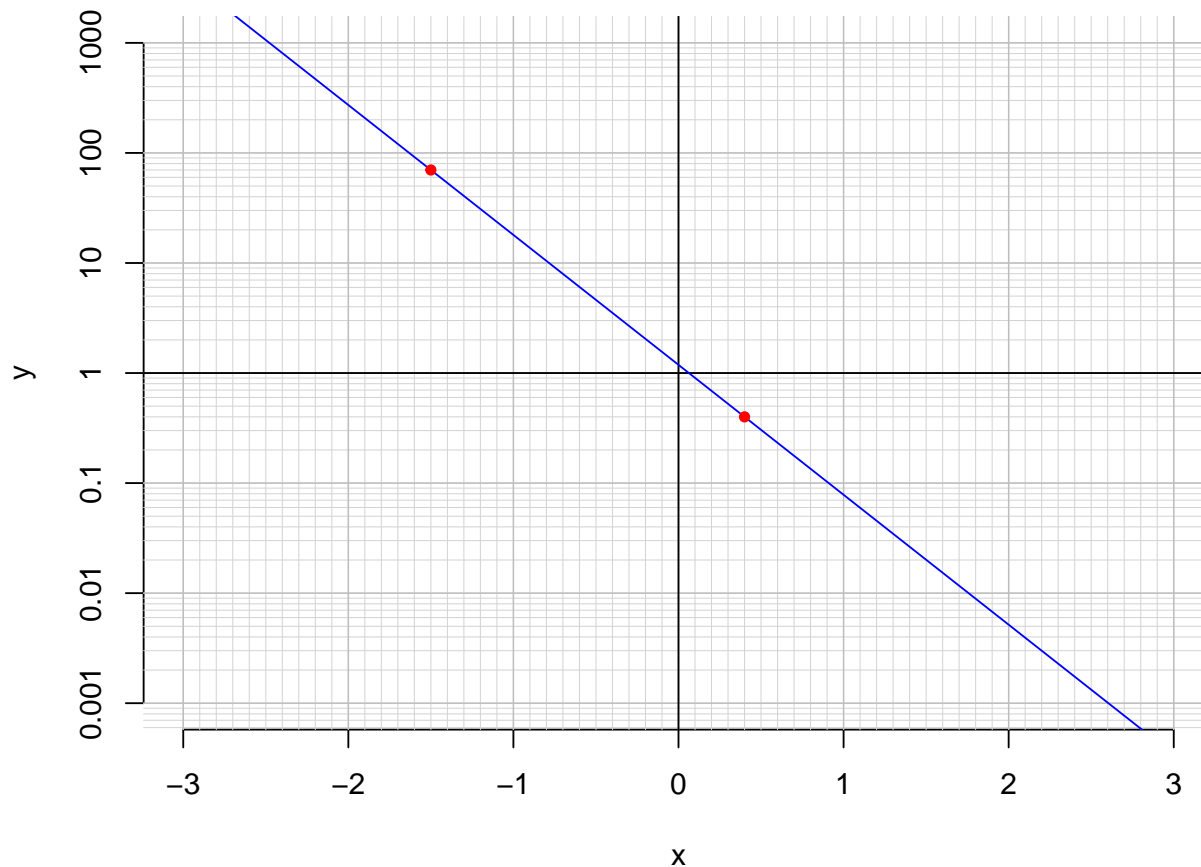
Divide both sides by $\frac{-7}{4}$.

$$\frac{-4}{7} \cdot \log_{10} \left(\frac{19 \cdot 5}{3} \right) = t$$

Switch sides.

$$t = \frac{-4}{7} \cdot \log_{10} \left(\frac{19 \cdot 5}{3} \right)$$

3. An exponential function $f(x) = 1.19 \cdot e^{-2.72x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(0.4)$.

$$f(0.4) = 0.4$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{2.72} \cdot \ln\left(\frac{x}{1.19}\right)$$

- c. Using the plot above, evaluate $f^{-1}(70)$.

$$f^{-1}(70) = -1.5$$